ZOOLOGIA 34: e20784
ISSN 1984-4689 (online)
zoologia.pensoft.net

RESEARCH ARTICLE

Ommatius: synonyms, new record, redescription of *Ommatius erythropus* and description of the female of *Ommatius trifidus* (Diptera: Asilidae: Ommatiinae)

Sheila Lima[1], Rodrigo Vieira[1], Alexssandro Camargo[1], Cínthia Chagas[2]

[1]*Coordenação de Pesquisas em Biodiversidade, Instituto Nacional de Pesquisas da Amazônia, Campus II. Avenida André Araújo, 2936, Aleixo, 69060-001 Manaus, AM, Brazil.*
[2]*Instituto de Criminalística, Polícia Civil do Amazonas. Avenida Noel Nutels 300, Cidade Nova 2, 69040-000 Manaus, AM, Brazil.*
Corresponding author: Rodrigo Vieira (rodrigo08vieira@gmail.com)

http://zoobank.org/0D205F0E-6CEA-44DA-A438-18703294A8A

ABSTRACT. *Ommatius erythropus* Schiner, 1867 is redescribed and a lectotype is established. The female of *Ommatius trifidus* Vieira, Bravo & Rafael, 2010 is described and a new record is provided. *Ommatius ruficaudus* Curran, 1928 is established as a new synonym of *Ommatius pulcher* (Engel, 1885). An identification key is presented to the *Ommatius costatus* species group. A map with the geographic records is provided.

KEY WORDS. Brachycera, *costatus* group, Neotropical, *normus* group.

INTRODUCTION

Ommatiinae Hardy, 1927, one of the 14 subfamilies of Asilidae, is characterized by the setae on the anterior surface of the antennal stylus (Dikow 2009). The most species-rich genus of Ommatiinae is *Ommatius* Wiedemann, 1821. *Ommatius* has wide geographic distribution, and is currently broadly defined by the character states of the subfamily (Scarbrough 2005), being the only included genus occurring in the Neotropical Region. Currently, there are 318 valid species in the world (Vieira 2015), 118 of which are from the Neotropics (Papavero 2009, Vieira 2015).

The New World species of *Ommatius* are divided into eight species groups (*ampliatus* and *holosericeus* (*holosericeus* complex), *costatus*, *hanebrinki*, *lucidatus*, *normus*, *pumilus* and *tibialis*) (Scarbrough 1990, 1993, 2000, 2002, 2008, Scarbrough and Perez-Gelabert 2006). The *normus* species group is currently restricted to South America, occurring in Venezuela, Guyana, Suriname, French Guiana, Brazil and Paraguay (Scarbrough 2008, Vieira et al. 2010), while the *costatus* species group is more widely distributed in the Neotropical Region. Males of the *Ommatius costatus* species group can be recognized by the presence of a long, thin, preapical, dorsoposterior seta on the mid femora; additionally, veins M_1 and M_2 are slightly sigmoid (Scarbrough 1993). The *Ommatius normus* species group is characterized mainly by the swollen hind femora, usually < 4.5 times longer than wide in anterior view, row of posteroventral bristles on the femur divided into basal and apical groups, separated by a wide bare space; epandrium with 2–3 long setae or macrosetae laterally; base of m1 narrow, at most 1/2 as wide as diameter at basal 1/3; distiphallus usually horizontal, only slightly depressed or elevated, tubular, wide in cross-section apically; spermathecae usually 3–5 times longer than wide, often strongly constricted medially (Scarbrough 2008).

MATERIAL AND METHODS

This study is based on the examination of specimens borrowed from the following institutions: AMNH – American Museum of Natural History, New York, USA; DZUP – Coleção Entomológica Padre Jesus Santiago Moure, Curitiba, Brazil; INPA – Coleção de Invertebrados do Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil; MNRJ – Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; MPEG – Museu Paraense Emílio Goeldi, Belém, Brazil; MZUEFS – Coleção Entomológica Professor Johann Becker, Museu de Zoologia da Universidade Estadual de Feira de Santana, Feira de Santana, Brazil; MZSP – Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil; NHM – Natural History Museum, London, UK; NMW – Naturhistorisches Museum, Vienna, Austria.

The morphological terminology follows Cumming and Wood (2009). The techniques of Vieira (2012) were used to examine the terminalia. Photographs of the specimens were taken with a Leica DFC500 digital camera attached to a Leica M205C stereomicroscope, connected to a computer with the Leica Application Suite LAS V3.6 software, which includes an Auto-Montage module (Syncroscopy software). After examination and illustration, the detached parts were stored in microvials with glycerin and pinned with their respective specimen. The label data are cited in full, with the original spelling, punctuation and dates. Information presented within square brackets are complementary data not included in the labels. Data from the same specimen but from different labels are separated by slashes (/). The distribution map was generated on the website SimpleMappr. Geographical coordinates were obtained from specimen labels. If they were not available, approximate coordinates were obtained from gazetteers and maps.

TAXONOMY

Two treatments are proposed to the *normus* group: the female of *Ommatius trifidus* Vieira, Bravo & Rafael, 2010 is described and a new record is provided, and *O. ruficaudus* Curran, 1928 is established as a new synonym of *O. pulcher* (Engel, 1885). *Ommatius erythropus* Schiner, 1867 is redescribed and a lectotype is established. Furthermore, *O. erythropus* Schiner is allocated in the *O. costatus* species group. A map with the geographic records of the species, including those of the synonym *O. ruficaudus* Curran, is provided (Fig. 1).

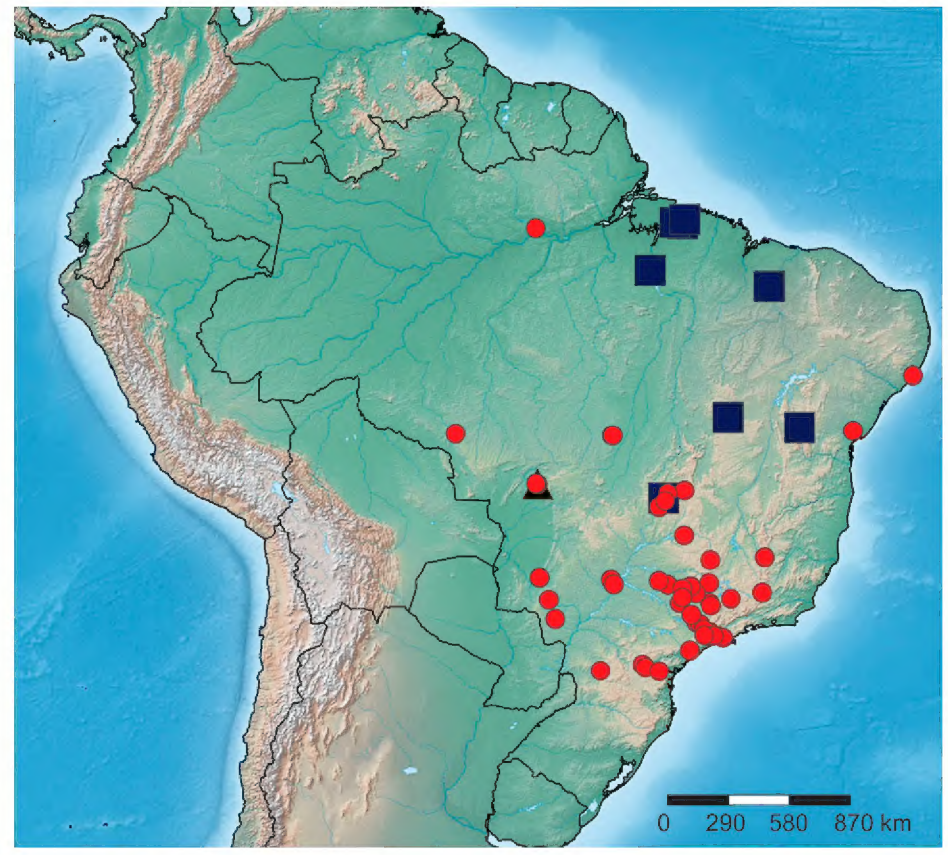


Figure 1. Geographic records of (■) *Ommatius trifidus*, (●) *O. pulcher* and (▲) *O. ruficaudus* syn. nov.

Ommatius Wiedemann, 1821

Ommatius Wiedemann, 1821: 213.

Type-species. *Asilus marginellus* Fabricius, 1781 (sub. des., Coquillett, 1910: 579).

Ommatius costatus species group

Ommatius erythropus Schiner, 1867

Figs 2–14

Ommatius erythropus Schiner, 1867: 411; Williston 1891: 90 (catalogue); Kertész 1909: 308 (catalogue); Carrera and Vulcano 1961: 77 (prey); Hull 1962 (2): 435; Martin and Papavero 1970: 59 (catalogue); Papavero 2009: 49 (catalogue).
Ommatinus erythropus; Engel 1930: 464, fig. 5.

Diagnosis. Abdomen spatulate (Fig. 6); 12 very fine yellow apical marginal scutellar setae; epandrium strongly turned down apically (Figs 10, 11, 12); hypandrium with acuminate projection with long yellow setae (Figs 10, 11, 13).

Redescription. Male. Lectotype here designated. Head (Fig. 4). Antenna dark brown (Figs 3, 5), scape with yellow setae, pedicel with black setae; palpus brown, yellow setose; proboscis dark brown, yellow setose ventrally, labial setae yellow; occiput black, silver tomentose with white setae; 8–12 black postocular macrosetae.

Thorax (Figs 2, 3, 5). Antepronotum and postpronotum black with white setae, yellow tomentose; mesonotum with ground color black dorsally, brown and yellow tomentose; posthumeral and postalar spots, lateroscutal stripes and pleuron silver tomentose, scutellum yellow tomentose. Chaetotaxy: 1 black and 1 yellow notopleural macrosetae; 1 yellow supra-alar macroseta; 1 yellow postalar macroseta; anatergal setae absent; 6 yellow dorsocentral macrosetae, 12 very fine yellow apical scutellar setae; katatergal macrosetae yellow; posterior meron + metanepisternum yellow tomentose, with row of yellow macrosetae and tuft of small yellow setae on posterior margin.

Wing (Figs 6, 7). Brown hyaline; dark brown veins; with costal dilatation; crossvein r-m just before middle of cell d; R_{4+5} bifurcation at level of apex of cell d; microtrichia on posterior wing margin arranged in single row; halter pale yellow, stalk base and bulb light brown.

Legs (Figs 2, 8). Femora orange-yellow, apex brown; tibia yellow; hind tibia with brown apex; tarsomeres brown, except first tarsomere of fore and mid tarsi yellowish. Chaetotaxy: fore femur yellowish setose ventrally, apex with 2 black setae; mid femur yellow setose, with 3 black and 2 yellow macrosetae anterodorsally, 2 black setae dorsoapically; right hind femur with setae as follows: 9 macrosetae anteroventrally – 5 black apically, 1 yellow and 1 black medially, 2 yellow basally; 10 yellow small stout setae posteroventrally; 3 yellow macrosetae posterodorsally; 2 yellow and 2 black setae dorsoapically; left hind femur with 2 basal yellow setae posteroventrally and 7

Figures 2–8. *Ommatius erythropus*, lectotype male: (2) habitus, lateral view; (3) head and thorax, lateral view; (4) head, frontal view; (5) head and thorax, dorsal view; (6) abdomen, dorsal view; (7) wing; (8) hind femora, lateral view. Scale bars: 1.0 mm.

black macrosetae posteroventrally; 4 yellow macrosetae anterodorsally; fore tibia with 3 long yellow setae posteriorly; mid tibia with 2 black ventral setae, 2 yellow posteroventral and 2 yellow anterodorsal setae; hind tibia with 4 black setae dorsoapically; tarsomeres largely black setose dorsally and yellow setose ventrally, first and third tarsomere of fore leg with 2 yellow setae, second tarsomere with 1 yellow seta.

Abdomen (Fig. 6). Brown. Spatulate; yellow setulose, densely pale yellow tomentose, posterior margin of tergites light brown and without setulae; tergites with yellow, lateral marginal

Figures 9–14. *Ommatius erythropus*, lectotype male: (9) terminalia, dorsal view; (10) epandrium, posterior view; (11) terminalia, posterior view; (12) terminalia, lateral view; (13) terminalia, ventral view; (14) labels. Scale bars: 0.5 mm.

macrosetae, longer on lateral margins of tergites I and III; two lateral macrosetae on tergites IV–IX.

Terminalia (Figs 9–13). Black, except for light brown cercus, gonocoxite and epandrium. Cercus truncate (Fig. 9); epandrium strongly turned down apically (Figs 10, 11, 12); epandrium with subapical projection and pointed apex (Figs 9, 10, 12); hypandrium with acuminate projection with long yellow setae (Figs 10, 11, 13); gonocoxite with digitiform projection at lateral margin (Fig. 13).

Remarks. *Ommatius erythropus* is a typical species of the *O. costatus* species group. It has the following characteristics of this group: preapical, dorsoposterior seta on the mid femora; hind femora more slender, usually 5–6 times longer than wide in anterior view, row of posteroventral bristles not divided into two groups or separated by wide bare space; M_1 and M_2 veins slightly sigmoid (Scarbrough 1993, 2008). *Ommatius erythropus* is similar to *O. spatulatus* Curran, 1928, but differs by the presence of six yellow dorsocentral macrosetae, apical scutellar yellow setae and mid femur with a brown, moderately thick, preapical, dorsoposterior seta. By contrast, *O. spatulatus* does not have dorsocentral macrosetae, apical scutellar setae and the mid femur has a pale, long, thin, preapical, dorsoposterior seta. Furthermore, *O. erythropus* differs from *O. spatulatus* by the combined characters of the terminalia.

Lectotype condition. Thorax with a hole on posterior portion of scutum.

Type examined. Lectotype: Savañah/erythropus, Coll. Winthem/Lectotype *Ommatius erythropus*. 1 male (NMW).

Paralectotype. Savañah/Coll. Winthem. 1 male (NMW).

Ommatius normus species group

Ommatius pulcher (Engel, 1885)

Figs 15, 16

Emphysomera pulchra Engel, 1885:146.

Ommatius (*Emphysomera*) *pulchra*; Bromley 1946: 112 (catalogue).

Ommatius pulchra; Curran 1928: 1; Scarbrough 1990: 66; Vieira et al. 2005: 19.

Ommatius pulcher; Martin and Papavero 1970 (35b): 60 (catalogue); Scarbrough 2008: 8, figs 4, 33–41; Papavero 2009: 51 (catalogue); Vieira et al. 2010: 44.

Ommatius ruficauda Curran, 1928: 2; Bromley 1946: 112 (catalogue); Hull 1962 (2): 435; Martin and Papavero 1970: 59 (catalogue); Papavero 2009: 51 (catalogue), **syn. nov.** (Figs 17–30).

Ommatius ruficaudus; Scarbrough 2008: 11, fig. 5; Vieira et al. 2010: 47. **syn. nov.** (Figs 17–30).

Figures 15–16. *Ommatius pulcher*, male: (15) habitus, dorsal view; (16) habitus, lateral view. Scale bars: 1.0 mm.

Remarks. Scarbrough (2008) and Vieira et al. (2010) commented on the similarity between *O. pulcher* (Figs 15, 16) and *O. ruficaudus* (Figs 17–30). After studying the type material of *O. ruficaudus* (Figs 17–30), we observed that, although the bodies of the specimens are covered with fungi, the male terminalia of *O. ruficaudus* and the illustrations of *O. pulcher* are essentially identical. Furthermore, Curran (1928) separated the two species by the coloration of genitalia of both sexes, reddish and shinning black, respectively. In *O. pulcher* and *O. ruficaudus* the apical scutellar setae are absent and both have the clavate abdomen. Vieira et al. (2010) mentioned that the type-locality of *O. ruficaudus* is Chapada dos Guimarães (Brazil) and Scarbrough (2008) wrote that additional specimens of this species have not been located. We found nine specimens that were collected at the type-locality during the SISBIOTA – Diptera project. These specimens were identified as *O. pulcher*. Thus, after the combination of data from distinct sources, *O. ruficaudus* is established as a new synonym of *O. pulcher*.

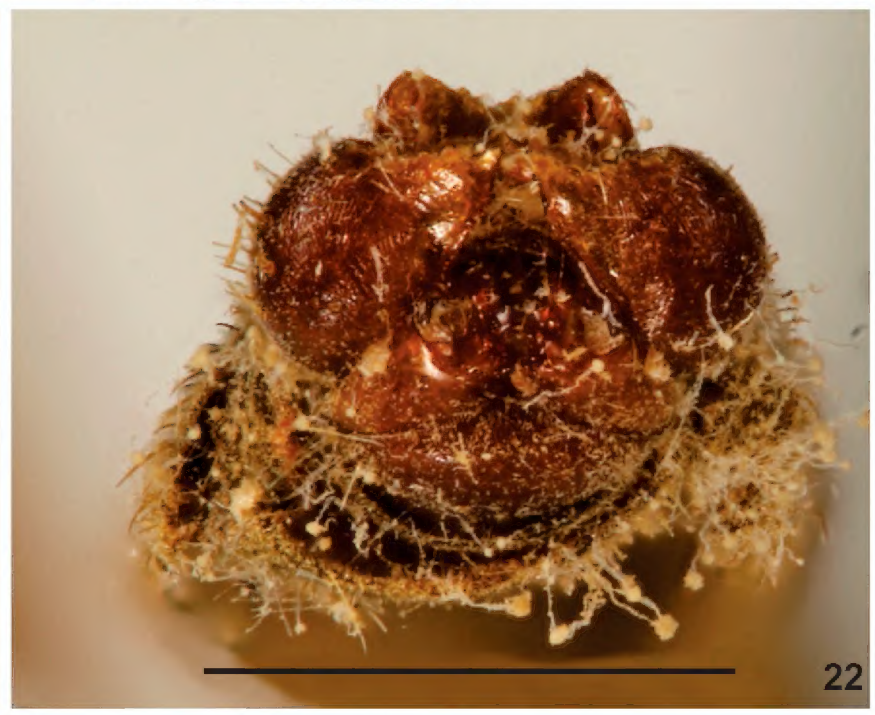
Holotype condition. Body largely covered with fungi, postpedicel on both antennae lost, head partially damaged, left mid leg and left hind tibia lost.

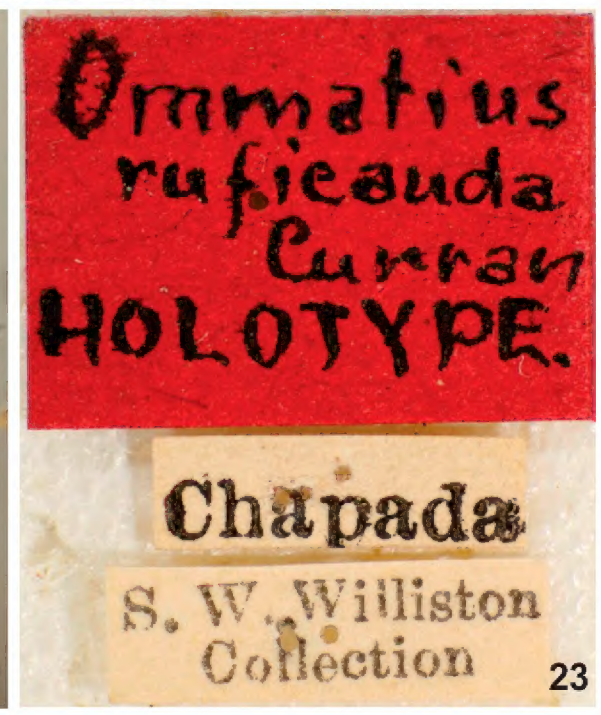
Geographical records. Brazil: Pará, Rondônia, Alagoas, Bahia, Mato Grosso, Distrito Federal, Goiás, Minas Gerais, Mato Grosso do Sul, Rio de Janeiro, São Paulo, Paraná and Santa Catarina; Paraguay.

Type examined. Holotype: *Ommatius ruficauda* Curran Holotype/Chapada [dos Guimarães – Mato Grosso, BRAZIL] [15°26'57.6"S 55°46'12.1"W]/S.W. Williston Collection. 1 male (AMNH).

Paratype: Same data as holotype, except: Allotype ♀. 1 female (AMNH).

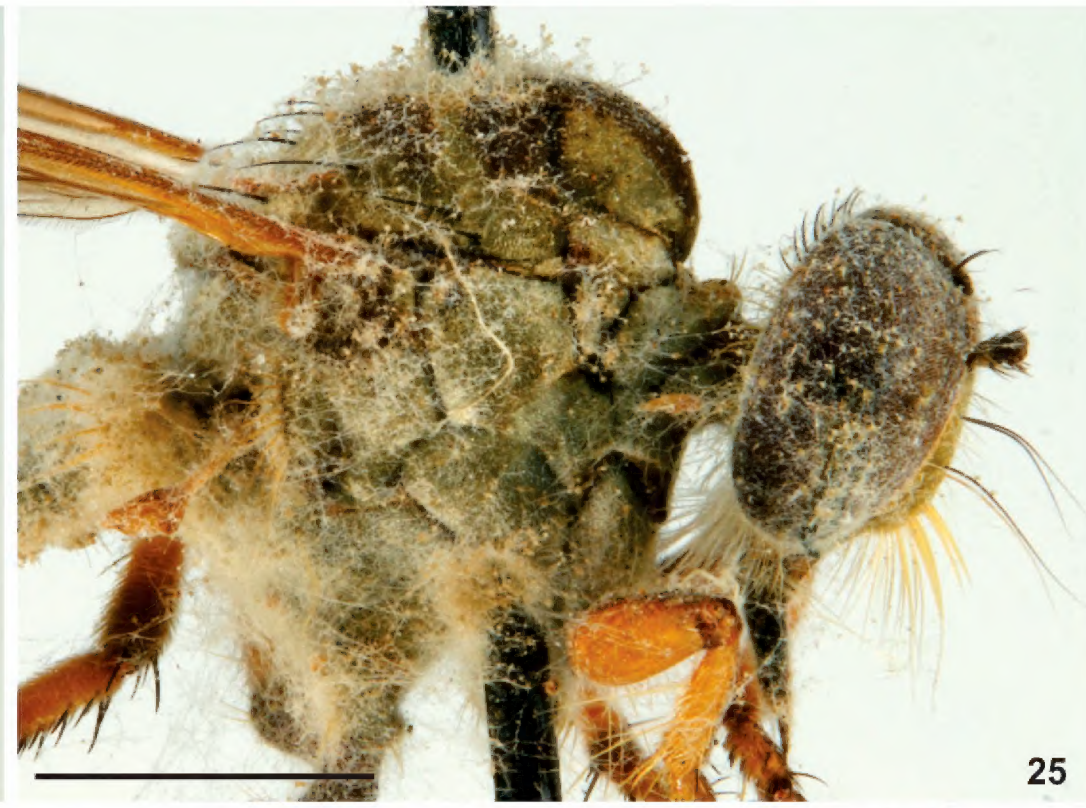
Additional material examined. Brasil. *Pará*: Oriximiná [01°45'56"S 55°51'58"W], 1 female (MZSP); *Rondônia:* Vilhena [12°44'26"S 60°08'45"W], 1 male, 1 female (DZUP); *Alagoas*: Mangabeira [9°38'46.2"S 35°42'51.1"W], 1 female (MZSP); *Mato Grosso*: Chap.[ada] Guimarães [15°26'57.6"S 55°46'12.1"W], 1 female (DZUP); Chap.[ada] Guimarães (12°50'S 51°47'W), 1 female (MZSP); Chap.[ada] Guimarães (12°50'S 51°45'W), 2 males (NHM); Chap.[ada] dos Guimarães (15°24'33.5"S 55°49'59.0"W), 5 males, 2 females (MZSP); Chap.[ada] dos Guimarães (15°26'10.7"S 55°47'22.9"W), 1 female (MZSP); Chap.[ada] dos Guimarães, (15°24'21.8"S 55°50'97"W), 1 male (MZSP); *Mato Grosso do Sul*: Aquidauana (20°26'07,2"S 55°39'32.8"W), 1 female (MZSP); *Bahia*: Cachoeira (Faz.[enda] Vila Rial) [12°35'44.8"S 38°54'01.6"W], 1 male (MZUEFS); *Distrito Federal*: Brasília [15°46'48"S 47°55'45"W], 1 male, 2 females (MZSP); *Goiás*: (no locality), 3 females (DZUP); Catalão [18°09'57"S 47°56'35"W], 1 female (DZUP); Campinas [Goiânia] [16°40'16.9"S 49°17'38.0"W], 1 female (MNRJ), 2 males, 4 females (MZSP); Corumbá [de Goiás][15°55'30"S 48°48'43"W] (F.[azenda] Monjolinho), 2 males, 1 female (MZSP); Corumbá [de Goiás], 1 female (MZSP); Anápolis [16°19'42"S 48°57'06"W], 1 female (MZSP); *Minas Gerais*: Barbacena [21°13'20"S 43°46'16"W], 4 males, 18 (DZUP); Passos [20°43'23"S 46°36'43"W], 2 males (DZUP); Poços de Caldas [21°47'08"S 46°34'01"W] (Retiro dos Carneiros), 3 males, 2 females (MNRJ); Poços de Caldas (Morro de Ferro) [21°55'S 46°31'W], 1 female (MNRJ); Poços de Caldas (Campo do Saco), 3 males, 3 females (MNRJ); Poços de Caldas (Alto da Santa Cruz), 2 females (MNRJ); Poços de Caldas (Alto do Selado), 1 female (MNRJ); S.[erra] do Cipó (Santana do Riacho) [19°20'41.2"S 43°38'26.9"W], 2 males, 1 female (MNRJ); Ibiá [19°29'09"S 46°32'41"W], 1 male(DZUP); Belo Horizonte, 1 male, 1 female (MZSP), Varginha [21°33'25"S 45°26'37"W], 1 female (MZSP); *Mato Grosso do Sul*: Caarogó [Caaropó] [22°37'57"S 54°49'23"W] (Faz.[enda] Pai Cué), 1 male (MZSP); Três Lagoas (marg.[em] esq.[uerda] rio Sucuriu) [20°32'25.8"S 51°50'57.9"W], 1 female (MZSP); Três Lagoas [20°47'11"S 51°41'52"W] (Faz.[enda] Floresta), 1 male (MZSP); Maracajú [21°36'39"S 55°09'58"W], 1 female (MZSP); *São Paulo*: Severínia [20°48'19"S 48°48'32"W], 14 males, 12 females (MZSP); Sumaré [22°49'20"S 47°16'23"W], 3 males, 2 females (MZSP); Ribeirão Preto [21°10'15"S 47°48'06"W]

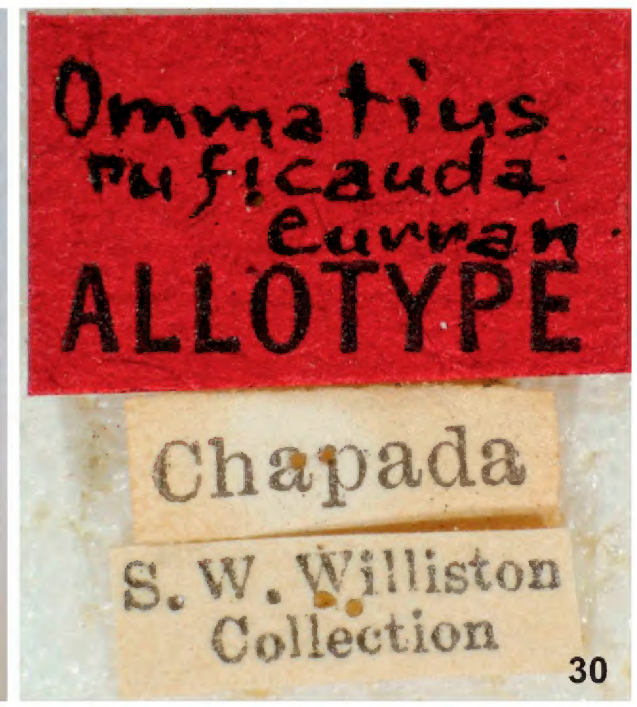




Figures 17–23. *Ommatius ruficaudus* syn. nov., holotype male: (17) habitus, lateral view, (18) head and thorax, lateral view; (19) head, frontal view; (20) wing; (21) head and thorax, dorsal view; (22) terminalia, posterior view; (23) labels. Scale bars: 17, 20 = 2 mm, 18, 19, 21, 22 = 1.0 mm.

ZOOLOGIA 34: e20784 | DOI: 10.3897/zoologia.34.e20784 | October 2, 2017





Figures 24–30. *Ommatius ruficaudus* syn. nov., holotype female: (24) habitus, lateral view; (25) head and thorax, lateral view; (26) head, frontal view; (27) wing; (28) head and thorax, dorsal view; (29) terminalia, posterior view; (30) labels. Scale bars: 20-28 = 2.0 mm, 29 = 1.0 mm.

(Rio Tamanduá), 7 males, 13 females (MZSP); Ribeirão Preto (Faz.[enda] Monte Alegre), 1 male (MZSP); Rib.[eirão Preto], 1 female (DZUP); Campinas [22°54'51"S 47°04'38"W], 1 male (MZSP); M.[ogi] das Cruzes [23°31'20"S 46°11'25"W], 13 males, 7 females (MZSP); Tamoio, 3 males, 3 females (MZSP); Cajuru (Coqueiros) [21°16'30"S 47°18'04"W], 1 male, 4 females (MZSP); Batatais [20°53'39"S 47°35'26"W], 25 males, 25 females (MZSP), 1 male (DZUP); Araraquara [21°47'06"S 48°10'35"W], 1 male (MZSP); Juquiá [24°19'06"S 47°38'06"W], 1 female (MZSP); Pontal [21°01'42"S 48°02'08"W], 1 female (MZSP); Guatapará [21°29'41"S 48°02'07"W], 2 females (MZSP); Mairiporã [23°19'17"S 46°34'32"W], 1 (MZSP); Jundiaí [23°11'09"S 46°53'34"W], 1 male (MZSP); Salesópolis (Est.[ação] Biol.[ógica] Boracéia) [23°37'51"S 45°52'11"W], 1 male (MZSP); São Paulo [23°32'50"S 46°38'09"W], 9 males, 15 females (MZSP); Poá [23°32'01"S 46°20'54"W], 1 male, 1 female (MZSP); Rio Claro [22°24'58"S 47°33'25"W], 9 males, 18 females (MZSP); Onda Verde [20°36'00"S 49°17'43"W](Faz.[enda] São João), 2 males, 10 females (MZSP); Barueri [23°30'47.8"S 46°52'22.5"W], 2 males, 1 female (MZSP); *Paraná*: Ponta Grossa [25°04'51"S 50°09'20"W], 1 male (DZUP); [Ponta Grossa] ([Parque] Vila Velha) [25°14'45.1"S 50°00'19.5"W], 2 females (DZUP); Curitiba [25°25'57"S 49°16'19"W], 1 male, 1 female (DZUP), 1 male (MZSP); Laranjeira do Sul [25°24'22"S 52°24'50"W], 1 female (DZUP).

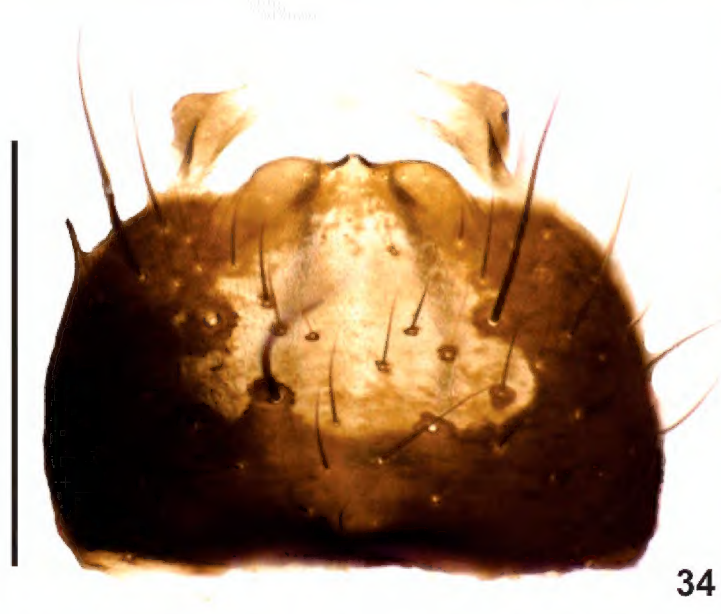
Ommatius trifidus Vieira, Bravo & Rafael, 2010

Figs 31–35

Ommatius trifidus Vieira, Bravo & Rafael, 2010: 47.

Description. Female. Head. Antenna black, scape and pedicel with black setae; palpus black, yellow setose; proboscis black, yellow setose ventrally, labial setae yellow; occiput black, yellow tomentose with whitish setae; 8 black postocular macrosetae.

Thorax. Antepronotum and postpronotum black with white setae; mesonotum black dorsally, brown and yellow tomentose; posthumeral spot, lateroscutal stripes and pleuron silver and yellow tomentose; scutellum yellow tomentose. Chaetotaxy: 2 notopleural macrosetae; 1 supraalar macroseta; 1 postalar macroseta; anatergal setae absent; 4 dorsocentral mac-



Figures 31–35. *Ommatius trifidus*: (31) male habitus, lateral view; (32) female habitus, lateral view; (33) tergite IX+X and cercus, dorsal view; (34) sternite VIII; (35) sternite VIII and spermathecae. Scale bars: 31, 32 = 3.0 mm, 33-35 = 0.5 mm.

rosetae; 2 black marginal scutellar macrosetae; discal scutellar setae yellow; katatergal macrosetae yellow; posterior meron + metanepisternum with row of yellow macrosetae and tuft of small yellow setae on posterior margin, silver tomentose.

Wing. Hyaline; black veins; without costal dilatation; crossvein r-m after middle of cell d; R4+5 bifurcation at level of apex of cell d; microtrichia on posterior wing margin arranged in single row; halter light brown.

Legs (Fig. 32). Fore and mid femora dark brown dorsally and orange-yellow ventrally, hind femora dark brown, orange-yellow basally; tibia yellow; tarsomeres dark brown. Chaetotaxy: fore femur yellow setose; mid femur yellow setose, with 4 black setae posterodorsally; right hind femur with setae as follows: 6 black setae posteroventrally, 2 black setae posterodorsally; fore tibia largely yellow setose, with 1 long black posteroventral seta; mid tibia with long black and yellow setae; hind tibia with 6 long black setae dorsally.

Abdomen. Black, yellow setulose, white tomentose, posterior margin of tergites light brown; tergites I–II with yellow, lateral, marginal macrosetae; black sternites.

Terminalia. Apical margin of sternite VIII slightly produced (Fig. 34); tergite IX + X short dorsally (Fig. 33); apical margin of cercus subtruncate (Fig. 33); basal half of spermathecae narrower than apical half with ripples at lateral margins (Fig. 35).

Type examined. Holotype male, Brazil, *Pará*: Bujaru [01°30'54"S 48°02'41"W], 12.v.1978/BRASIL, Pará, I.S. Gorayeb [Collector]/Holótipo *Ommatius trifidus* Vieira, Bravo and Rafael (MPEG).

Paratypes: Brasil, *Pará*: Belém (MPEG-CAMPUS) [1°27'03"S 48°26'44"W], 1 male, 21.vi.1993, L. Costa [Collector] (MPEG); Tucuruí, Rio Tocantins, Marg.[em] Direita Canoal [4°00'48.6"S 49°45'37.8"W], 26–28.iii.1984/Armadilha Suspensa/Brasil, Pará, T. Pimentel 1 male (MPEG); Bôa [Boa], Vista, mu.[nicípio] Castanhal [1°17'53.7"S 47°55'00.5"W], 3.iii.1964/BRASIL, PA[rá], W. França Col. 1 male (MZSP); [Rodovia] Belém-Brasília, Km 90 [16°11'22.9"S 49°02'08.3"W], F.S. Antonio, 30.vii.1972/BRASIL, PA[rá], M. Helana Col. 1 male (MZSP); *Bahia*: Seabra [12°25'07"S 41°46'13"W], 11–13.i.2008. Leg Alvim, E./Armadilha Luminosa/MZUEFS# 38363 1 male (MZUEFS); Barreiras, APA Rio de Janeiro [11°53'23.9"S 45°35'46.7"W], 05.iv.2008, Bravo, F., Menezes, E., Alvim, E., Silva-Neto, A. [Collectors]/MZUEFS #39217 1 male (MZUEFS).

Additional material examined. Brazil, *Maranhão*: Caxias [04°51'32"S 43°21'22"W] (Fazenda Frexeira), 4 females; Caxias (Res.[erva] Ecol.[ógica] Inhamum) [04°53'30"S 43°24'53"W], (1 female).

Geographical records. Brazil: Pará, Maranhão (**new record**) and Bahia.

Remarks. The spermathecae of *O. trifidus* Vieira, Bravo and Rafael is very similar to *O. normus* Curran. However, in *O. trifidus* the basal half of the spermathecae is narrower than the apical half with ripples at the lateral margins, while in *O. normus* the apical 1/3 of the spermathecae is wider than the basal 2/3, with the two areas separated by a strong constriction (Scarbrough 2008).

Identification key to males of the *Ommatius costatus* species group (modified from Scarbrough 1993)

1 Mid femur with brown, moderately thick, preapical, dorsoposterior seta 2
1' Mid femur with pale, long, thin, preapical, dorsoposterior seta 5
2 Apical scutellar macrosetae present; hind tibia with short, thick apical macroseta anteriorly; epandrium narrow apically, much narrower than medially (Brazil, Colombia, Peru) ..... *O. uncatus* Scarbrough, 1993
2' Apical scutellar setae absent, if present, short; hind tibia with only short slender apical setae anteriorly; epandrium about as wide apically as medially 3
3 Epandrium strongly turned down apically (Figs 10, 12) (South America) ..... *O. erythropus* Schiner, 1867
3' Epandrium straight apically 4
4 Vein R_4 at or just below wing apex; epandrium short, 2 times longer than wide, ventral corner rotated basally and strongly curved ventrally; gonostylus narrow, about 1/6 as wide as long medially (Brazil) .. *O. tractus* Scarbrough, 2007
4' Vein R_4 above wing apex; epandrium longer, 3 times as long as wide, ventral corner simple, not as above; gonostylus much wider, 1/3-1/2 as wide as long medially (Mexico, Costa Rica) ..... *O. incurvatus* Scarbrough, 1993
5 Gonostylus flat in cross-section, wide in lateral view 6
5' Gonostylus usually oval to round in cross-section, narrow in lateral view 10
6 Epandrium with subapex strongly constricted, apex flared and wider than subapex; gonocoxite with flat, elongate process (Costa Rica, Panama, southern Lesser Antilles, South America) ..... *O. orenoquensis* Bigot, 1876
6' Epandrium without subapical constriction, apex usually pointed; gonocoxite without unusually flat, elongate process 7
7 Hypandrium with dense pad of pile apically or with transverse cluster of setae medially 8
7' Hypandrium without pad of pile or cluster of setae 11
8 Hypandrium with dense pad of pile apically; apex of epandrium broadly rounded; aedeagus slightly recurved apically (Cuba) ..... *O. piliferous* Scarbrough, 1985
8' Hypandrium with only transverse cluster of setae medially; apex of epandrium pointed; aedeagus not recurved apically 9
9 Medioapical margin of hypandrium with long thick spine; apical 1/3 of epandrium wide, not unusually narrow or toothlike (Bolivia, Brazil, Ecuador, Peru)..... ..... *O. spinosus* Scarbrough, 1993
9' Medioapical margin of hypandrium without long thick spine; apical 1/3 of epandrium acutely pointed, toothlike (Brazil) ..... *O. dentatus* Scarbrough, 1993
10 Pleuron yellowish tomentose; base of distiphallus cordiform in apical profile, base abruptly angled downward

and without prominent vertical flanges dorsally (Ecuador, Mesoamerica, Mexico) ..... *O. humatus* Scarbrough, 1993

10′ Pleuron whitish tomentose; base of distiphallus oval, convex with 2 prominent vertical flanges dorsally (Jamaica).... ..... *O. oreophilus* Farr, 1965

11 Hind tibia apically with short, thick, spurlike macroseta ..12

11′ Hind tibia apically without short, thick, spurlike macroseta; epandrium with flat, leaflike process (Brazil) .... *O. didymus* Scarbrough, 1993

12 Epandrium flared apically, width of apex greater than subapex..... 13

12′ Epandrium pointed apically, width of apex less than subapex 16

13 Two or more apical scutellar macrosetae 14

13′ Apical scutellar macrosetae absent..... 15

14 Hind femur swollen; epandrium strongly curved behind terminalia, with short spinelike process subapically (Belize, El Salvador, Guatemala, Mexico)..... ..... *O. amula* Curran, 1982

14 Hind femur not unusually swollen; epandrium only slightly angled behind terminalia, with strong spinelike process dorsally (Tobago Island, South America southward to Argentina) .....*O. costatus* Rondani, 1850

15 Dorsocentral setae absent; abdomen spatulate (Brazil, Argentina) ..... *O. spatulatus* Curran, 1928

15′ Three-four dorsocentral setae; abdomen not spatulate (Mexico) .....*O. achaetus* Scarbrough, 1993

16 Ventral margin of epandrium with flat, thin, rectangular process .....*O. complanatus* Scarbrough, 1993

16′ Ventral margin of epandrium without flat, thin, rectangular process (Jamaica).....*O. alexanderi* Farr, 1965

ACKNOWLEDGMENTS

We thank Fundação de Amparo à Pesquisa do Estado do Amazonas (FAPEAM) and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the PRONEX project, Edital 016/2006, Proc. 1437/2007, CNPq Process 401.243/2012–5, FAPEAM EDITAL 022/2013–FIXAM/AM Process 062.00745/2014 and FAPEAM edital 21/2011. Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) (Grant 2010/52314-0) for the support to the SISBIOTA Brazil Program. We also thank the curators of the following museums for the loan of specimens: David Grimaldi (AMNH), Luciene Marinoni (DZUP); Márcia Couri (MNRJ), Marcio Oliveira (INPA), Orlando Silveira (MPEG), Carlos Lamas (MZSP), Freddy Bravo (MZUEFS), Erica McAlister (NHM), and Peter Sehnal (NMW). Courtney Richenbacher (AMNH) for the photographs of *Ommatius ruficaudus* type-specimens and Lisiane Wendt (UFPR) for curating the *Ommatius erythropus* holotype. Anonymous reviewers made comments that improved the manuscript. CNPq and CAPES provided fellowships that allowed us to complete this work.

LITERATURE CITED

Bromley SW (1946) The robber flies of Brazil (Asilidae: Diptera). In: Livro de homenagem a Romualdo Ferreira d'Almeida. Sociedade Brasileira de Entomologia, São Paulo, p. 103–120.

Carrera M, Vulcano MA (1961) Relação de alguns Asilidae (Diptera) e suas presas (IV). Revista Brasileira de Entomologia 10: 67–80.

Coquillett DW (1910) The type-species of the North American genera of Diptera. Proceedings of the United States National Museum 37: 499–647. https://doi.org/10.5479/si.00963801.37-1719.499

Curran CH (1928) New species of *Ommatius* from America, with key. (Asilidae, Diptera). American Museum Novitates 327: 1–6.

Cumming JM, Wood DM (2009) Adult morphology and terminology. In: Brown BV, Borkent A, Cumming JM, Wood DM, Woodley NE, Zumbado MA (Eds) Manual of Central American Diptera, Ottawa, vol. 1, p. 9–50.

Dikow T (2009) Phylogeny of Asilidae inferred from morphological characteristics of imagines (Insecta: Diptera: Brachycera: Asiloidea). Bulletin of the American Museum of Natural History 319: 1–175. https://doi.org/10.1206/603.1

Engel EO (1885) Eine neue Emphysomera (Diptera, Fam. Asilidae). Entomologische Nachrichten 11:145–147.

Engel EO (1930) Asilidae: Diptera. In: Lindner E (Ed.) Die Fliegen der Palaearktischen Region. Schweizerbart, Stuttgart, 191 pp.

Hull FM (1962) Robber Flies of the World: The Genera of the Family Asilidae. Bulletin of the United States National Museum 224: 431–906. https://doi.org/10.5479/si.03629236.224

Kertész C (1909) Catalogus dipterorum hucusque descriptorum (IV). Oncodidae, Nemestrinidae, Mydaidae, Asilidae 4. Museum Nationale Hungaricum: 49–348.

Martin CH, Papavero N (1970) A catalogue of the Diptera of the Americas south of United States. Family Asilidae. Museu de Zoologia, Universidade de São Paulo 35b: 1–139.

Papavero N (2009) Catalogue of Neotropical Diptera. Asilidae. Neotropical Diptera 17: 1–179.

Scarbrough AG (1990) Revision of the New World *Ommatius* Wiedemann (Diptera: Asilidae). I. The *pumilus* species group. Transactions of the American Entomological Society 116: 65–102.

Scarbrough AG (1993) Revision of the New World species of *Ommatius* Wiedemann (Diptera: Asilidae): the Neotropical *costatus* species group. Revista de Biologia Tropical 41: 729–753.

Scarbrough AG (2000) Two additional species of robber flies of the genus *Ommatius* Wiedemann (Diptera: Asilidae) from the Bahamas and with replacement names for two other species. Proceedings of the Entomological Society of Washington 102: 912–918.

Scarbrough AG (2002) Synopsis of the Neotropical *holosericeus* complex of the genus *Ommatius* Wiedemann (Diptera): *ampliatus* and *holosericeus* species groups. Transactions of the American Entomological Society 128: 133–222.

Scarbrough AG (2005) *Afroestricus*, a new Afrotropical Ommatiinae (Diptera: Asilidae) genus with twenty species and two species groups. Zootaxa 1041: 1–76.

Scarbrough AG (2008) New *Ommatius* Wiedemann from the Americas with two new species groups, keys, and taxonomic notes (Diptera: Asilidae). Insecta Mundi 32: 1–14.

Scarbrough AG, Perez-Gelabert DE (2006) A review of the asilid (Diptera) fauna from Hispaniola with six genera new to the island, fifteen new species, and checklist. Zootaxa 1381: 1–91.

Vieira R (2012) A new species of *Leinendera* Carrera, 1945 (Diptera, Asilidae, Asilinae) from Brazil. Biota Neotropica 12: 1–7. https://doi.org/10.1590/S1676-06032012000300003

Vieira R (2015) *Ommatius nanciae*, a new species from Ecuador (Diptera, Asilidae, Ommatiinae). Iheringia, Série Zoologia 105: 223–227. https://doi.org/10.1590/1678-476620151052223227

Vieira R, Bravo F, Rafael JA (2010) *Ommatius* Wiedemann, 1821, *normus* species-group (Diptera, Asilidae): description of two new species and comments on Brazilian species. Zootaxa 2344: 39–51.

Vieira R, Castro I, Bravo F (2005) A new species of *Ommatius* Wiedemann (Diptera: Asilidae) from Brazil. Zootaxa 1017: 19–24. https://doi.org/10.1146/zootaxa.1017.1.2

Submitted: 7 November 2016
Received in revised form: 1 May 2017
Accepted: 8 June 2017
Editorial responsibility: Gabriel L.F. Mejdalani

Author Contributions: SL, RV, AC, and CC wrote the introduction, material and methods, and key to species of the *Ommatius costatus* group; SL photographed *O. trifidus* and *O. pulcher* and described the female of *O. trifidus*; AC photographed and redescribed *O. erythropus*; RV and CC synonymized *O. ruficaudus* with *O. pulcher*.
Competing Interests: The authors have declared that no competing interests exist.